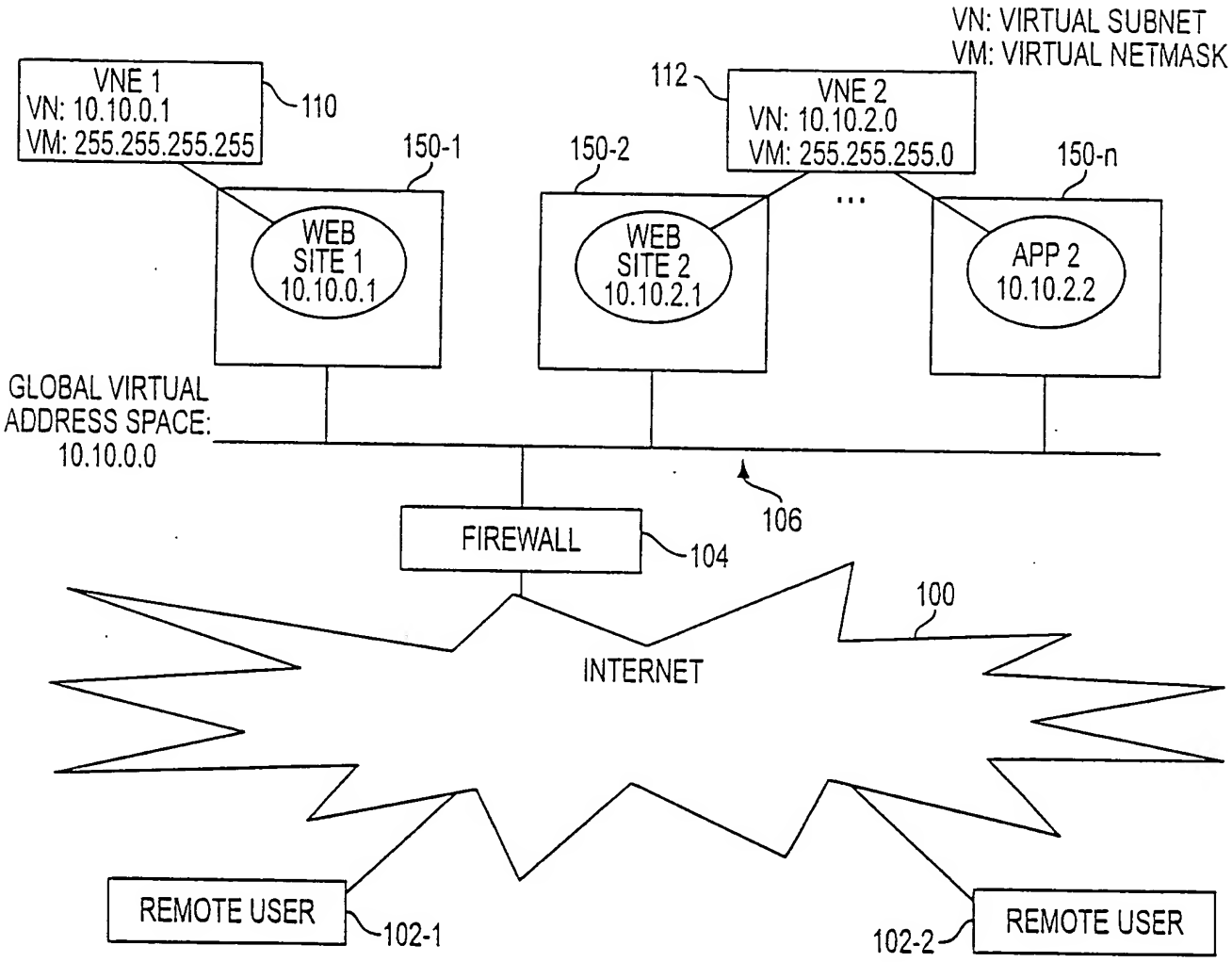

VN: VIRTUAL SUBNET
VM: VIRTUAL NETMASK
VNE 1
VN: 10.10.0.1
VM: 255.255.255.255
110
112
VNE 2
VN: 10.10.2.0
VM: 255.255.255.0
150-1
150-2
150-n
WEB SITE 1 10.10.0.1
WEB SITE 2 10.10.2.1
APP 2 10.10.2.2
GLOBAL VIRTUAL ADDRESS SPACE: 10.10.0.0
106
FIREWALL
104
100
INTERNET
REMOTE USER
102-1
102-2
REMOTE USER

FIG. 1

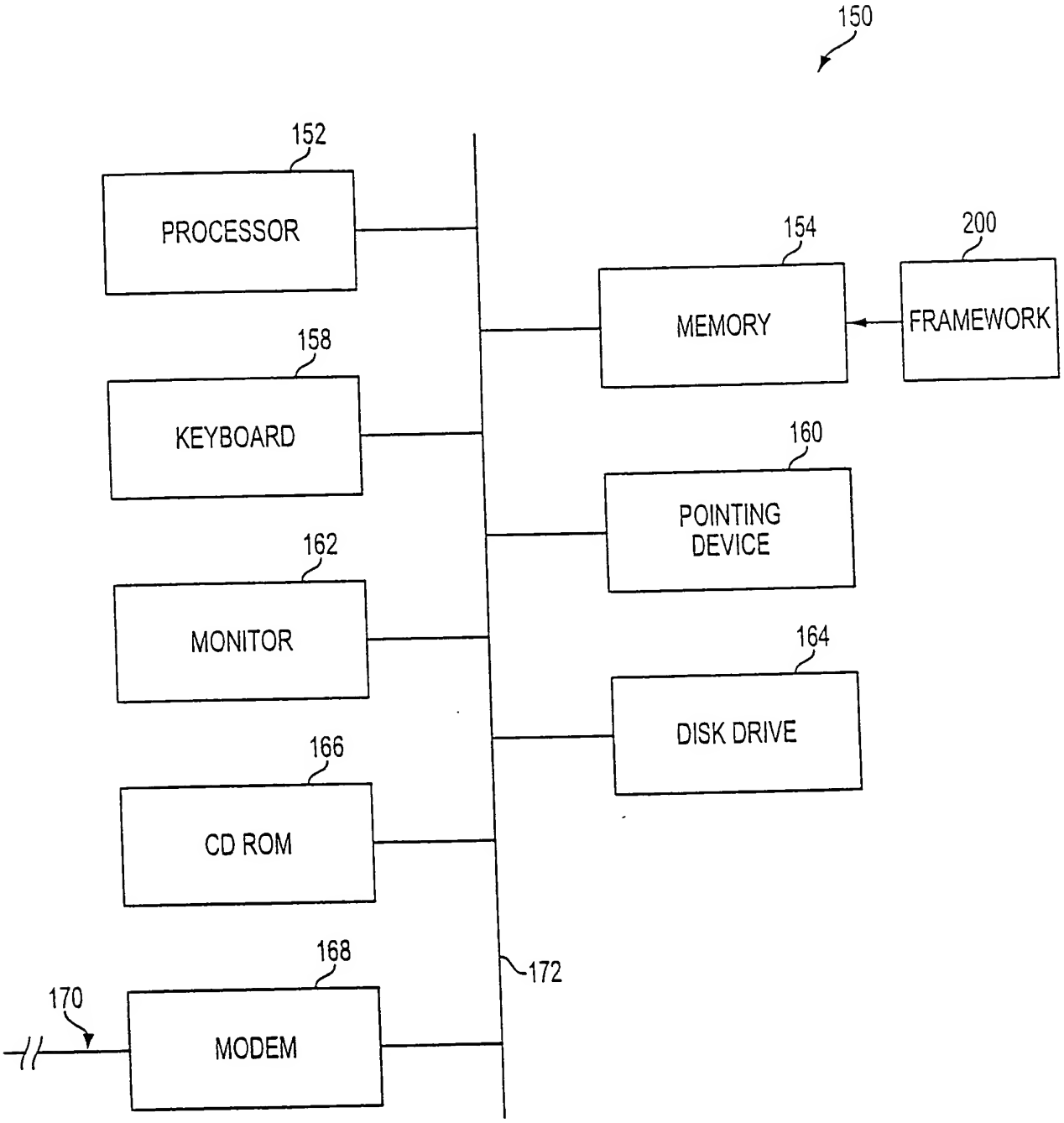

150
152
PROCESSOR
154
MEMORY
200
FRAMEWORK
158
KEYBOARD
160
POINTING DEVICE
162
MONITOR
164
DISK DRIVE
166
CD ROM
168
MODEM
170
172

FIG. 2

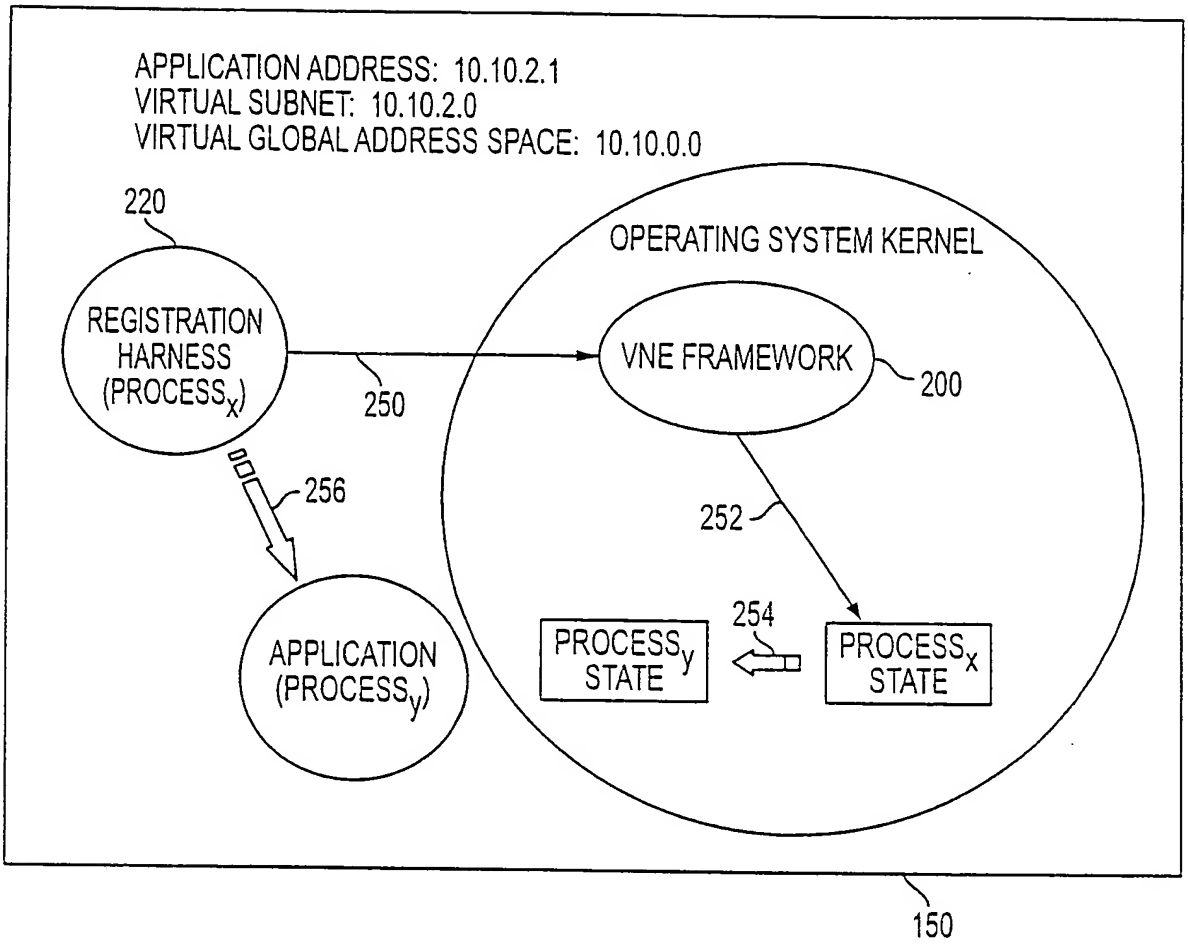

APPLICATION ADDRESS: 10.10.2.1
VIRTUAL SUBNET: 10.10.2.0
VIRTUAL GLOBAL ADDRESS SPACE: 10.10.0.0
220
REGISTRATION HARNESS (PROCESS$_x$)
250
OPERATING SYSTEM KERNEL
VNE FRAMEWORK
200
256
252
254
APPLICATION (PROCESS$_y$)
PROCESS$_y$ STATE
PROCESS$_x$ STATE
150

FIG. 3

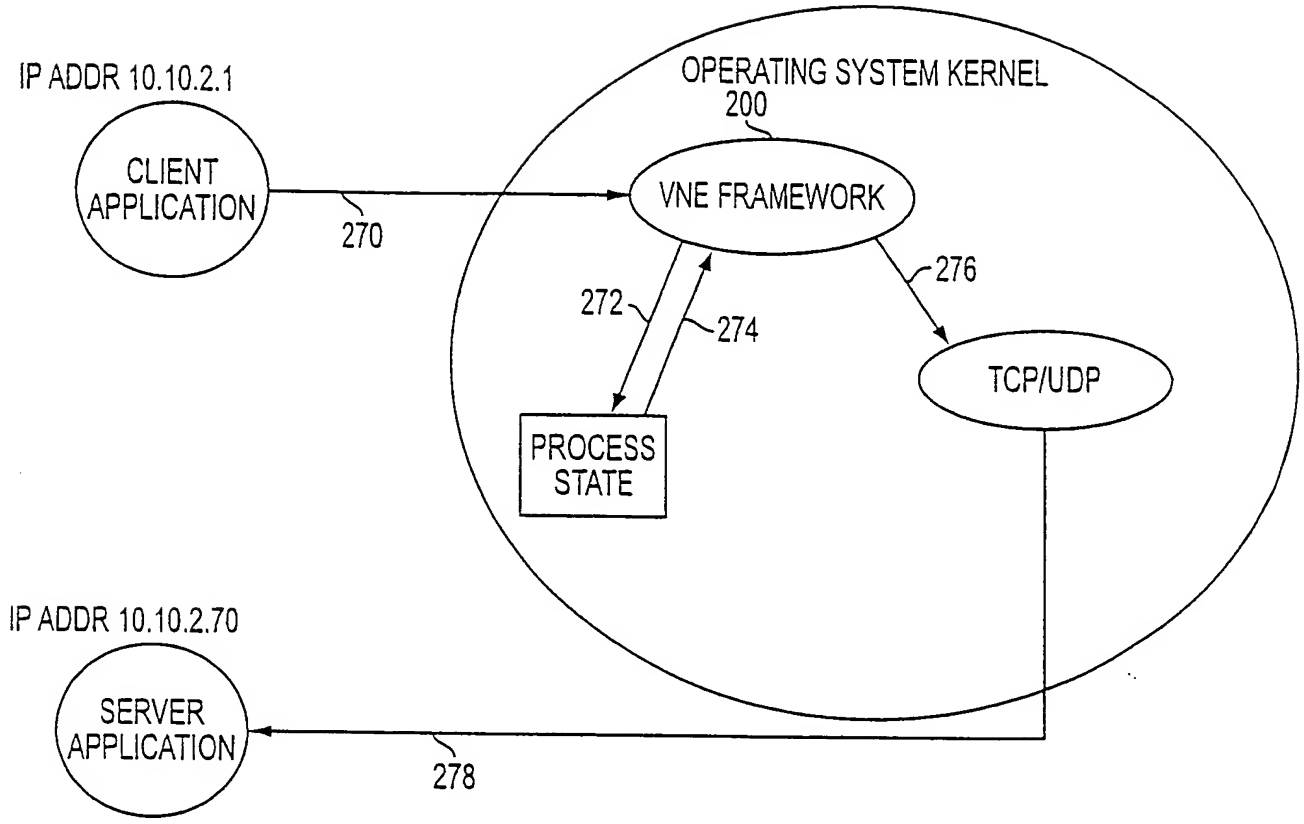

IP ADDR 10.10.2.1
CLIENT APPLICATION
270
OPERATING SYSTEM KERNEL
200
VNE FRAMEWORK
272
274
276
PROCESS STATE
TCP/UDP
IP ADDR 10.10.2.70
SERVER APPLICATION
278

FIG. 4

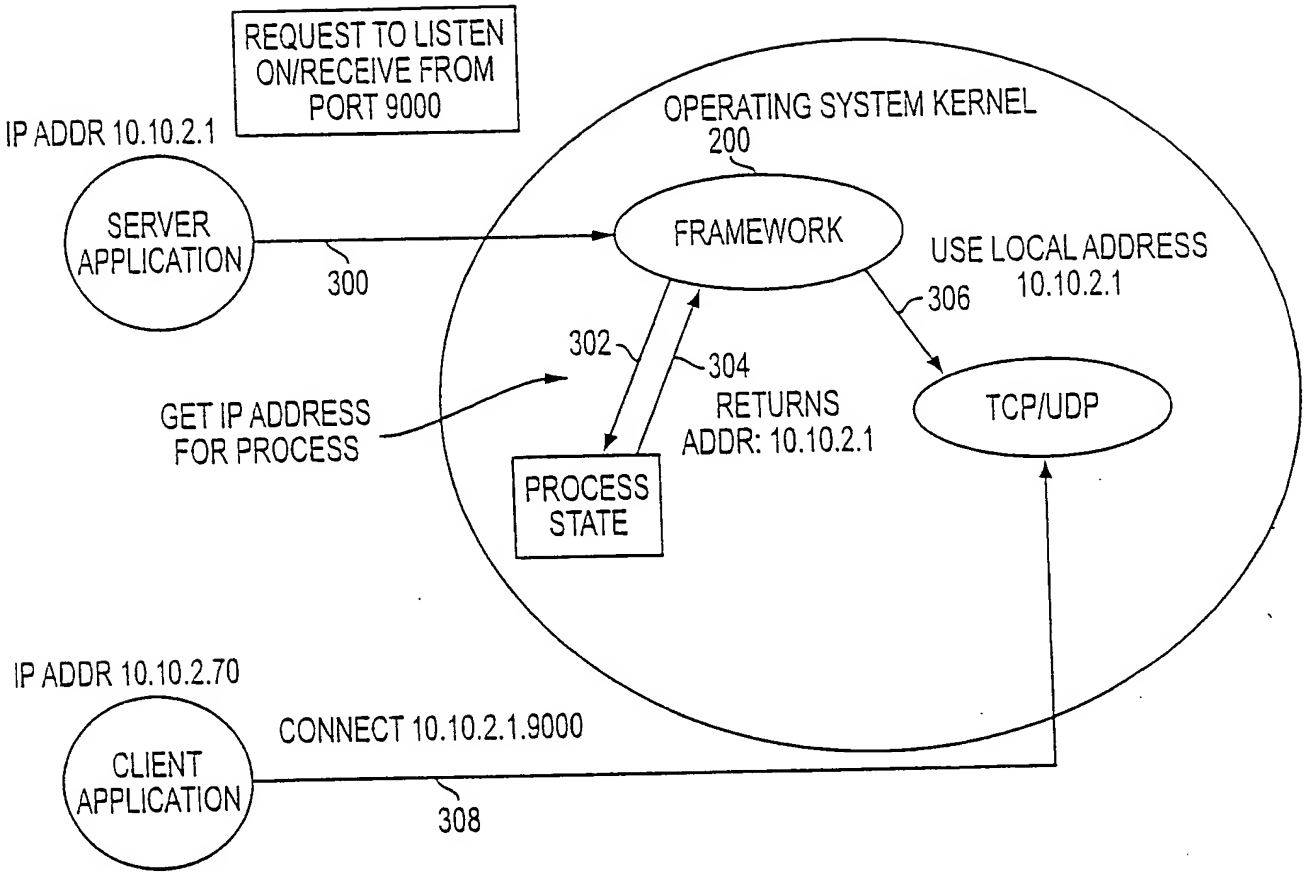
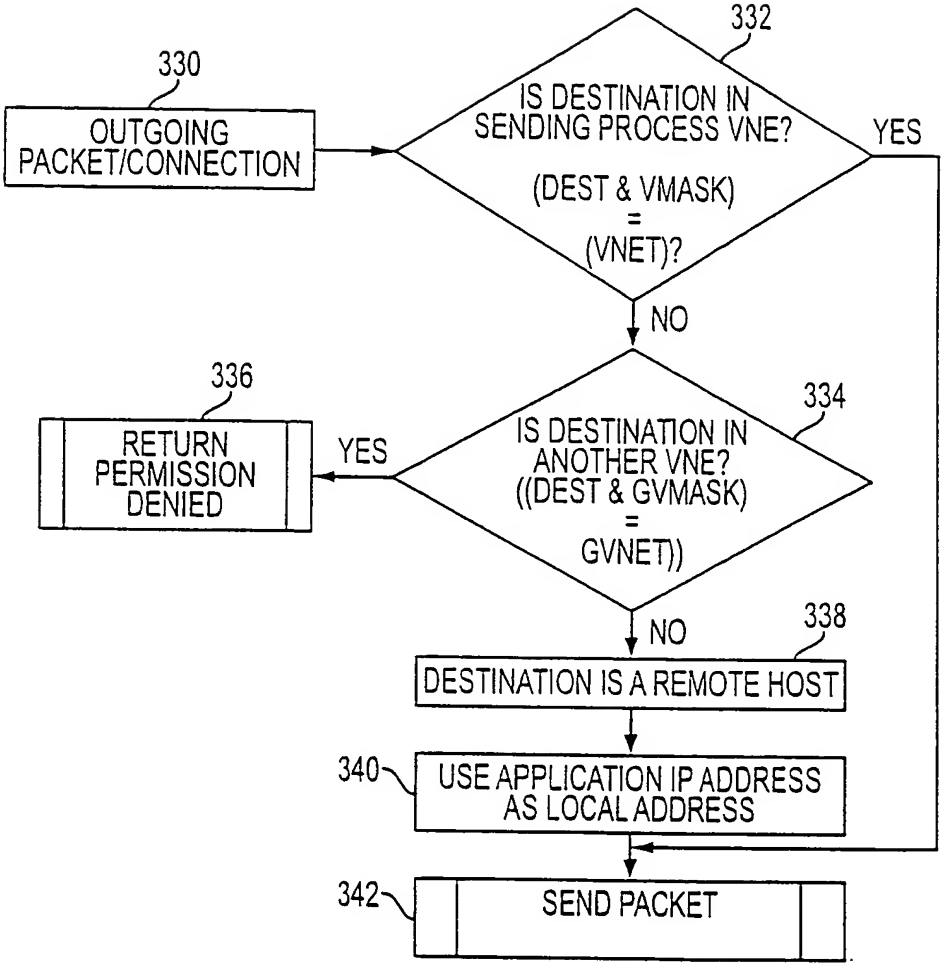
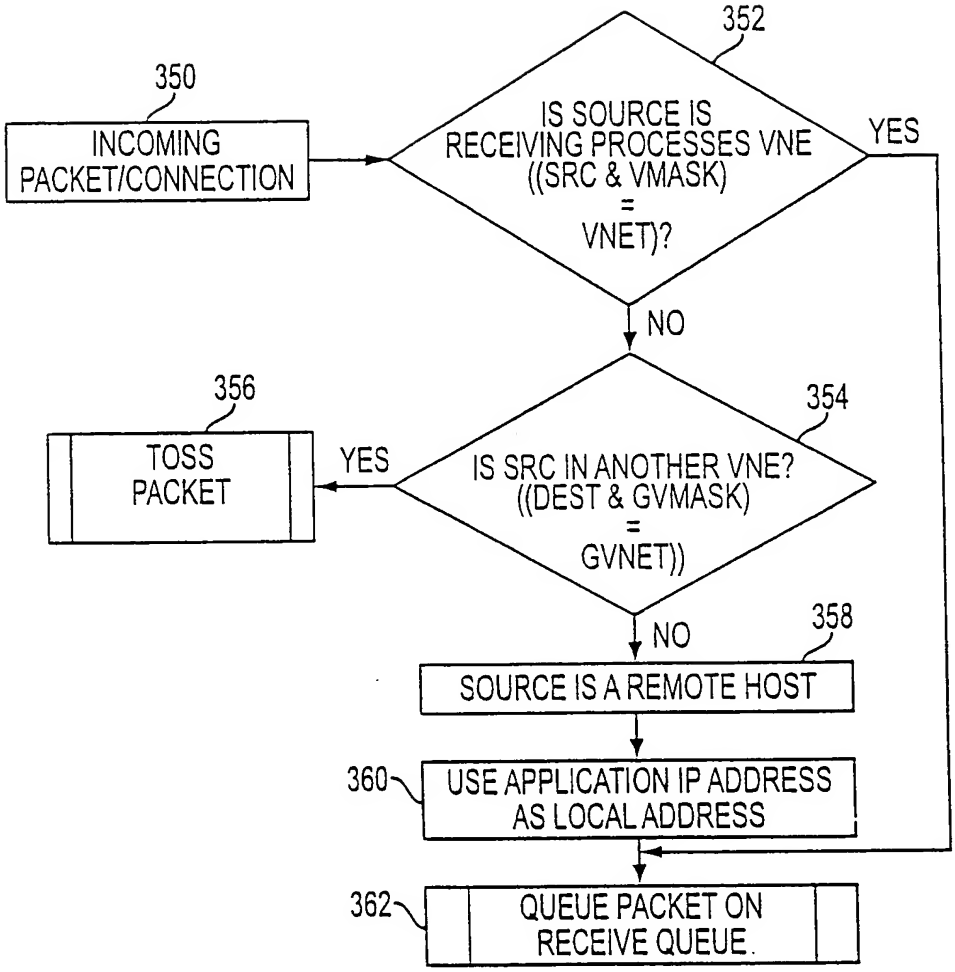

REQUEST TO LISTEN ON/RECEIVE FROM PORT 9000
IP ADDR 10.10.2.1
SERVER APPLICATION
300
OPERATING SYSTEM KERNEL
200
FRAMEWORK
USE LOCAL ADDRESS 10.10.2.1
306
302
304
RETURNS ADDR: 10.10.2.1
GET IP ADDRESS FOR PROCESS
PROCESS STATE
TCP/UDP
IP ADDR 10.10.2.70
CONNECT 10.10.2.1.9000
CLIENT APPLICATION
308

FIG. 5



VNET: VIRTUAL SUBNET (e.g. 10.10.2.0)
VMASK: VIRTUAL SUBNET MASK (e.g. 255.255.255.0)
DEST: DESTINATION ADDRESS
GVNET: GLOBAL VIRTUAL ADDRESS SPACE NETWORK (e.g. 10.10.0.0)
GVMASK: GLOBAL VIRTUAL ADDRESS SPACE MASK (e.g. 255.255.0.0)

FIG. 6



VNET: VIRTUAL SUBNET (e.g. 10.10.2.0)
VMASK: VIRTUAL SUBNET MASK (e.g. 255.255.255.0)
SRC: SOURCE ADDRESS
GVNET: GLOBAL VIRTUAL ADDRESS SPACE NETWORK (e.g. 10.10.0.0)
GVMASK: GLOBAL VIRTUAL ADDRESS SPACE MASK (e.g. 255.255.0.0)

FIG. 7